Hybex™
Microarray Incubation System
USER MANUAL

Cat. #1057-36-1, 1057-36-2

FOR RESEARCH USE ONLY

Not for Use in Diagnostic Procedures

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Serial Number

The following serial number identifies the specific instrument you have purchased and must be referenced when requesting service. A copy is affixed to the instrument.

Technical Service: (408) 733-7337, techserv@scigene.com

Warranty

SciGene warrants that the heating unit described in this manual shall be free of defects in materials and workmanship for a period of 12 months from date of delivery. This warranty does not cover removable blocks or accessories. In the event of a defect during the warranty period, SciGene's limit of liability will be to provide replacement parts at no charge or, at its sole discretion, replace the product. The foregoing warranty is void in the event the unit was abused or modified or used in a manner inconsistent with its intended purpose. SciGene makes no other warranty, expressed or implied including warranties of merchantability and fitness for a particular purpose. In no event shall SciGene be liable for any direct, indirect, special, incidental or consequential damages or for any damages resulting from loss arising out of or in connection with the sale, use or performance of the product.

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Table of Contents

I. SAFETY NOTICES 3
A. Warnings 3
B. Cautions 3
II. UNPACKING AND SET UP 4
A. Unpacking 4
B. Parts Provided 4
C. Installation 4
III. USING YOUR HYBEX SYSTEM 5
A. Components, Controls and Accessories 5
B. Handling the Incubation Chambers 6
C. Using the Temperature Controller 6
D. Calibrating the Temperature Controller 7
IV. MAINTAINING YOUR HYBEX SYSTEM 8
A. Powering Off 8
B. Checking and Replacing Fuses 8
C. Cleaning 8
V. TROUBLESHOOTING 9
VI. SPECIFICATIONS 9
VII. ORDERING INFORMATION 9
A. System Components 9
B. Optional Tube Blocks and Accessories 9

I. SAFETY NOTICES

A. Warnings

Failure to comply with the following warnings that are affixed to the product can lead to possible personal injury or death.

WARNING
For the continued protection against risk of fire, replace only with fuse of the specified type and current ratings.

B. Cautions

Failure to comply with the following cautionary statement affixed to the product may lead to possible personal injury.

II. UNPACKING AND SET UP

A. Unpacking

All components of the system are supplied in a single carton with three interior cartons. Open the largest interior carton which contains the heating base. Remove the packaging material around the unit and lift it out taking care not to damage the hinged cover. Unpack the remaining two small interior cartons which contain the incubation chambers.

Carefully inspect the heating unit carefully for damage.

If there is evidence of damage, do not discard the shipping materials since they may be needed to return the unit.

B. Parts Provided

The following items are provided with the system. Please inspect to ensure that all components are included

- Hybex™ Microsample Incubator, heating base
- User Manual
- Power Cord
- Microarray Incubation Chambers (Two Complete Sets)
  Each Set Provided Includes:
  - Microarray Slide Racks (2) (Shipped inside chamber)
  - T-handled allen wrench for assembling chambers
  - Handle for duplexed slide racks
  - Four pronged screw-in handle for chambers
  - Pack of replacement absorbent pads for chamber cover (25)
  - Hybex™ Microarray Incubation Chamber User Guide

C. Installation

Place the heating unit on a level surface within a few feet of the power source. The unit should be positioned to have clearance along the top so that the lid can be opened completely without interference. Leave at least 3 inches of clearance from the back panel for air circulation.

Assemble and insert both incubation chambers into the heating unit. See Section III for how to handle chambers.

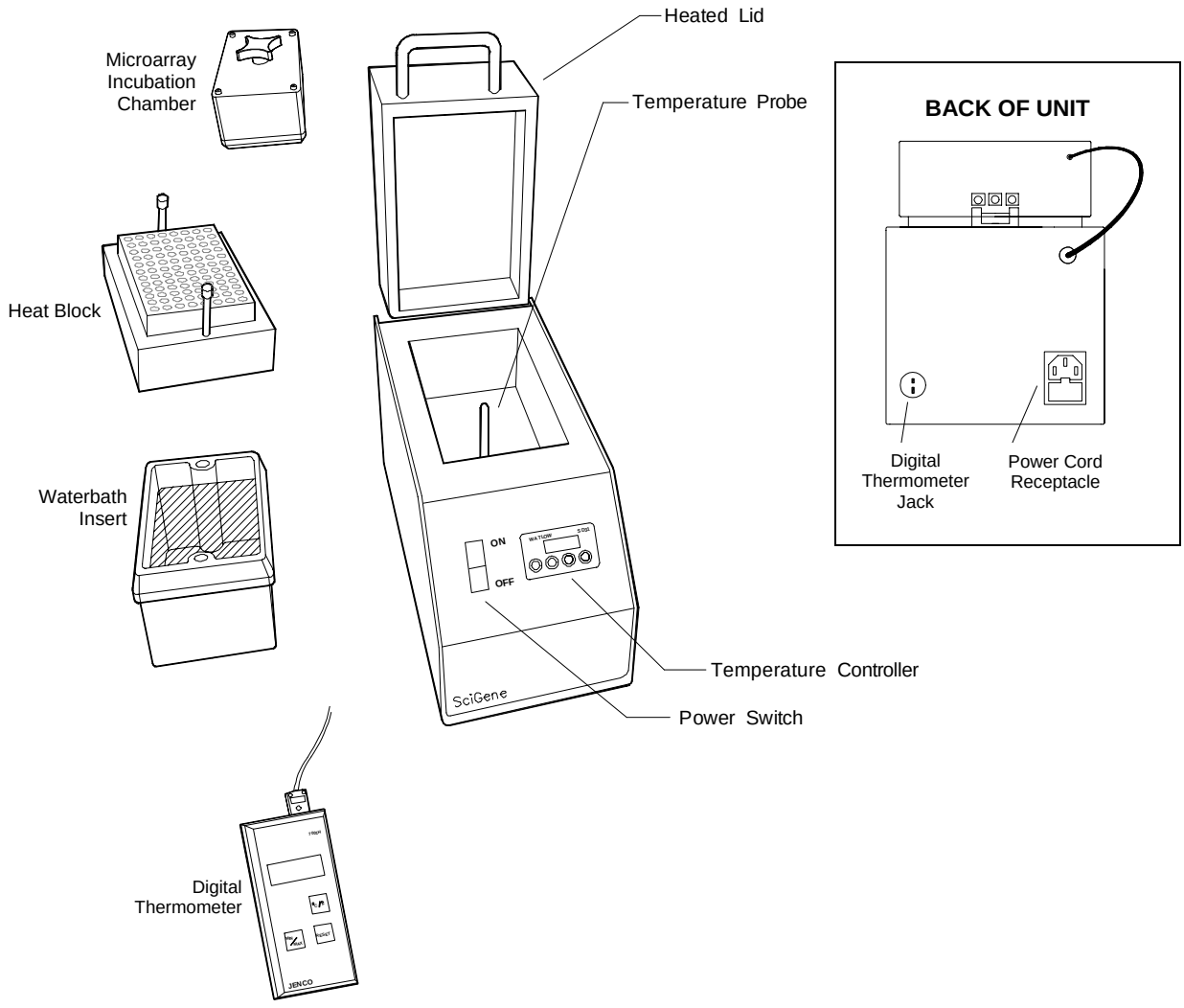
Both incubation chambers must be inserted into heating unit before turning on power.

Plug the power cord provided into the back of the unit and then to a properly grounded outlet. Use only the power cord provided. Turn on power to the system using the switch on the front of the unit.

III. USING YOUR HYBEX SYSTEM

A. Components, Controls and Accessories

Name	Function
Power Switch	Turns on main power to unit
Temperature Controller	Used to set and observe block temperature
Heated Lid	Heats the sealed air around the block
Temperature Probe	Senses the temperature of chambers/blocks
Digital Thermometer Jack	For calibrating system temperature
Microarray Incubation Chamber	For array hybridization
Heat Block (optional)	Heats tubes and plates without cap condensation.
Digital Thermometer (optional)	For calibrating system temperature
Waterbath Insert (optional)	For heating buffers or water



B. Handling the Incubation Chambers

See the Hybex™ Microarray Incubation User Guide included with each chamber set for details on how to use the slide racks and assemble the chamber. The following information is limited to how to insert and remove the chambers from the heating unit.

Chambers are inserted and removed with the aid of a single, four-pronged black plastic handle provided.

1. Thread handle several turns into the chamber cover.
2. Lower the assembled chamber into the unit aligning the cutout on the side of the chamber with the temperature probe in the base.
3. Repeat with second chamber
4. Remove the handles from the chamber, turn on power and set desired temperature (See next section)

Do not operate the system without both chambers inserted into the heating unit !!

C. Using the Temperature Controller

The temperature controller has a single LED read out and four push buttons. The LED displays the set temperature when the **SET** key is pressed and held. Otherwise the **ACTUAL** block temperature is displayed. The push buttons are used to set the block temperature and when required, to calibrate the temperature controller.

1. To set the block temperature, hold in the **SET** button. The previous set temperature will be displayed.

2. While depressing the **SET** button, press the up or down arrow buttons until the desired set temperature is shown.

3. Release the buttons and the actual block temperature will again be displayed. The unit will now adjust the heat of the block until the new set temperature is attained.

The controller is calibrated at the factory to provide an accurate block temperature when operated between 35 to 99˚C.

D. Calibrating the Temperature Controller

The temperature controller comes calibrated from the factory to provide accurate block temperatures from 35 to 99˚C.

The temperature controller will require calibration only if:

- When checking the block temperature with a calibrated digital thermometer, the block temperature differs by more than one degree (1˚C) from the actual temperature shown on the controller display.

An NIST calibrated digital thermometer (sold separately, Cat. #1051-52-0) is required to calibrate the unit.

Follow these steps to adjust the controller to achieve accurate temperatures.

1. Set the temperature on the controller to 65˚C and allow the temperature in the unit to stabilize.
2. Using the cable provided with the digital thermometer (SciGene Cat. #1051-52-0), plug one end into the blue receptacle found on the back panel of the unit and the other into the digital thermometer.
3. Turn on the thermometer using the **ON/OFF** button on the keypad. The temperature of the block will be displayed.
4. On the temperature controller, press the infinity key for three seconds until "**OPEN**" appears.
5. Press the down arrow four times until "**Cal**" appears.
6. Press and hold the set key. The existing offset value between the controller and digital thermometer is displayed.
7. Calculate the difference in the temperature shown on the controller and the digital thermometer; e.g. the controller displays 52.5˚C and the digital thermometer displays 51.0˚C, the difference is 1.5˚C.
8. Press and hold the **SET** key and use the up and down arrows to enter the offset value calculated in Step #7. For example, if the controller displays a temperature that is 1.5˚C higher than the digital thermometer, adjust the offset value to *minus* 1.5 (-1.5).
9. Press the **Infinity Key** (∞) to exit calibration. The block temperature is now calibrated for the set temperature you selected. Repeat the calibration process starting at Step 1 for the highest temperature for the range of temperatures you will be using.

IV. MAINTAINING YOUR HYBEX SYSTEM

A. Powering Off

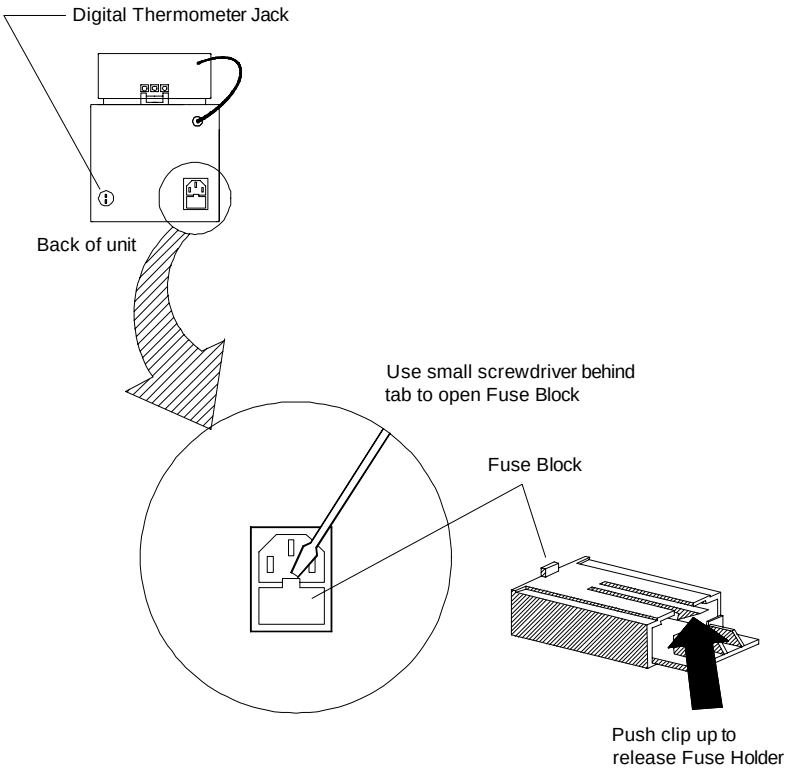
Turn the power switch to the OFF position and unplug the power cord before performing any service procedure.

B. Checking and Replacing Fuses

There are two fuses located in a removable fuse block below the power cord receptacle on the back of the unit.

Insert a small, flat blade screwdriver into the tab recess just below the plug receptacle. Push down to release the fuse block. Slide out the fuse holder from the fuse block while holding the retaining tab out of the way. Gently pry out the fuses. A blown fuse appears dark.

Always replace fuse(s) with those of the same amperage and voltage as shown on the label below the fuse block.


Digital Thermometer Jack
Back of unit
Use small screwdriver behind tab to open Fuse Block
Fuse Block
Push clip up to release Fuse Holder

C. Cleaning

Clean the metal surfaces and heated lid using a mild, detergent-based spray cleaner and wipe with a soft cloth. Avoid abrasive cleaners that can scratch surfaces.

The bottom of the chamber is sealed and will retain spills and condensation. Clean the chamber and temperature probe frequently to avoid build up of residue that can interfere with the heat control system.

V. TROUBLESHOOTING

Symptom	Cause	Solution
Power switch light does not turn on	Blown fuse(s)	Replace fuse(s) on back of unit, beneath power cord receptacle.

VI. SPECIFICATIONS

Electrical	
Cat. #1057-36-1	115V AC; 50/60 Hz; 250W
Cat. #1057-36-2	220V AC; 50/60 Hz; 250W
Dimensions	
Outside (cover closed) H x W x D	8 x 6 x 12 inches (12 x 14 x 30 cm)
Weight	
Net	5.2 lbs (2.4 kg)
Gross (in shipping carton)	4.1 to 6.0 lbs (1.9 to 2.7 kg)
Performance and Controls	
Temperature Range	Ambient +5˚C to 99˚C
Temperature Regulation	± 0.2˚C
Heat up Time	>5˚C per minute
Temperature Controller	Digital PID, single loop
Temperature Display	Actual or Set single LED
Digital Thermometer Output	Thermocouple

VII. ORDERING INFORMATION

A. System Components

Cat. #	Description	UoM
1057-30-0	Hybex Microsample Incubator, heating base only, 115V	Each
1057-30-2	Hybex Microsample Incubator, heating base only, 220V	Each
1057-37-0	Additional Microarray Incubation chamber-Complete with slide racks, assembly tool and handle	Each
RP1057-32-1	Replacement absorbent pad for Microarray Incubation Chamber Cover, 25/pack	Pack
RP1057-32-3	Additional Hybex Microarray Rack, holds 4 slides	Each
RP1057-32-5	Additional Handle for duplexed Hybex racks	Each
RP1057-32-3	Replacement Microarray Incubation Chamber, Cover and Base	Each

B. Optional Tube Blocks and Accessories

Cat. #	Description	UoM
1057-31-0	PCR Tube block, holds 96x0.2 ml tubes or single plate.	Each
1057-33-0	0.6mL tube heat block, holds 60x0.6mL tubes	Each
1057-34-0	1.5mL tube heat block, holds 32x1.5mL microcentrifuge tubes	Each
1057-35-0	Waterbath Insert for Hybex heating unit	Each
1051-52-0	Digital thermometer. Includes cable and NIST certificate	Each